

Physical Science 101

Course Syllabus

Course Description: Introduction to the physical sciences including topics from mechanics, electricity and magnetism, optics, thermodynamics, atomic and nuclear physics and introductory chemistry. Designed for the non-physical science major. This course has been identified by the GEAC/QEP as a general education core course fulfilling the core requirements, as well as, writing enriched course.

Textbook: Conceptual Physical Science – Hewitt, Suchocki, & Hewitt – 4th Edition (required).
LiveText Membership: participation in this course requires that you possess a membership in LiveText. Memberships may be purchased through the bookstore and activated by going online to LiveText through the McNeese Portal. This membership belongs to you and may be used for other courses at McNeese and for your own educational needs. If you already have a membership, you do not need to purchase another one.

Course Objectives: The student will develop a conceptual understanding of the fundamental principles of physics and chemistry.

Student Learning Objectives:

- TLW understand the scientific method and apply it to authentic situations supplied within the classroom setting.*
- TLW demonstrate knowledge of the history of the SI System of Units and use that knowledge in unit conversion.
- TLW demonstrate a conceptual knowledge of straight line, projectile, and circular motion along with graphical representations of straight-line motion.
- TLW demonstrate knowledge of Newton's Laws of Motion and apply that knowledge to real world situations.
- TLW demonstrate the ability to relate The Laws of Conservation of Energy and Momentum to natural and artificial settings.
- TLW understand the transfer of energy by waves (mechanical and electromagnetic), heat, and electron movement.
- TLW demonstrate an understanding of the nature of light, its properties, and how it impacts human life.
- TLW demonstrate knowledge of the atom, its nature, and its behavior in both natural and manipulated situations.

*Identified as general education competency requirement and will be assessed during the semester for QEP/GEAC reporting purposes.

Assessment: Student learning will be assessed through embedded questions in examinations or as a departmental examination.

Methods of Instruction: Consist of lectures, readings, and class discussions.

Course Availability: This course is available at <http://blackboard.mcneese.edu>

Classroom Etiquette: It is expected that all students will act in a manner to promote the best learning environment for all students. As such, offensive or demeaning comments and disruptive behavior will not be permitted. Offending students will be asked to leave the class until such time as they can conform to this behavior policy.

Cell phones should be turned off or set to vibrate mode. Students should leave class to answer any phone calls and are responsible for everything covered in class during absence.

Course Content and Topical Outline: (Part 1)

- I. Motion and Scientific Method(Chapters 1 and 2)
 - A. Scientific Method and Inertia
 - B. Vectors and Scalars
 - C. Speed, Acceleration, and Forces
 - D. Newton's Laws of Motion
- II. Energy and Momentum (Chapter 3)
 - A. Impulse and Momentum
 - B. Conservation of Momentum
 - C. Collisions
 - D. Work Energy Theorem
 - E. Conservation of Energy
- III. Circular Motion (Chapter 4)
 - A. Law of Gravity (Inverse square law)
 - B. Projectile motion
 - C. Orbits
- IV. Fluid Mechanics and Thermodynamics (Chapters 5, 6, and 7)
 - A. Pressure and Buoyancy
 - B. Temperature and Heat (including Specific Heat)
 - C. Law of Thermodynamics
 - D. Heat Transfer and Change of Phase
- V. Electricity and Magnetism (Chapters 8 and 9)
 - A. Charge and Coulomb's Law
 - B. Ohm's Law and Circuits
 - C. Magnetic Fields and Currents
 - D. Electromagnetic Induction
- VI. Waves and Light (Chapters 10 and 11)
 - A. Types of Waves
 - B. Reflection, Refraction, and Interference
 - C. Electromagnetic Spectrum
 - D. Transparent and Opaque
 - E. Colors, Dispersion, and Polarization

Tentative Test Schedule

Test 1: Chapters 1, 2, 3

Test 2: Chapters 4, 5, 6, 7

Test 3: Chapters 8 and 9

Test 4: Chapters 10 and 11

Course Policies:

- **Homework:** Homework and writing assignment will be given throughout the semester and will be graded for demonstration of understanding, accuracy, neatness, and effectiveness to communicate in written English. Homework will consist of questions given from each chapter and should be answered in complete sentences. Writing assignments will include short papers and/or reviews of articles and will pertain to topics

discussed in class. NO LATE submissions are accepted. If you are absent the day it is due, you are to turn it in early or at the **next** class meeting (the day you return). Any homework not turned in will be a **zero**. No Homework grades will be dropped.

- **Exams:** 4 exams (closed book) will be given. The lowest test grade will be dropped. A minimum of three of the exams must be taken. You must show up on time for all tests, including the final. If a student shows up after a test has already been completed and turned in, that student will not be allowed to take the test. Calculators are allowed during the test. Cell phones, blackberries, and other electronic devices are not allowed during the test or final.
- **Make-ups:** There will be **NO** make-up exams. If an exam is missed that will count as your dropped test grade. If you miss more than one test it will be counted as a **zero**. Students who miss examinations or required class assignments due to a planned absence for University approved events must present the approved University excused absence to the instructor prior to missing. Please do not miss the day of the tests.
- **Final Exam:** The final exam (closed book) will include all topics in the course. The final exam is comprehensive and mandatory for all students. A student will receive a failing grade if they do not take the final.
- **Attendance:** Regular class attendance is essential to success in this course. Attendance will be taken at each class. If a student's total number of absences (excused or unexcused) exceeds forty percent of the total classes, the instructor reserves the right to assign a WN for non-attendance or assign a grade of F for a final grade, at the instructor's discretion. A WN is only given for those students missing class due to extended medical problems after the drop date. Students should not assume they will receive a WN for non attendance.
- Students must understand that they are responsible for all material covered and assigned during their absences (excused and unexcused) and that they are responsible for the academic consequences of their absences.

Grading Policy: Grades will be based on homework, writing assignments, 3 out of 4 exams, and a final.

The final grade assessment for this course will be based on the following:

- Homework and Writing Assignments.....20%
- 3 out of 4 Exams55%
- Final exam.....25%

Letter grades will be assigned on the following scale:

- A: > 89.5 %
- B: 79.5-89.4%
- C: 69.5-79.4%
- D: 59.5-69.4%
- F: < 59.4%

there is **NO CURVING** in this class. These grade breaks are **FINAL**.

There is no extra credit for the course. Students should begin the semester with this in mind and attempt all course work to the best of their ability in order to receive as much credit as possible during the semester.

Academic Integrity:

McNeese State University seeks to strengthen the value of the student's academic achievement by fostering a learning environment which is based on honesty, respect, fairness, responsibility, and excellence. Consequently, the University expects that all students will uphold the highest standards of academic integrity and demonstrate honesty and integrity in all academic relationships. Plagiarism, cheating, and academic fraud will be dealt with according to MSU policies and may result in failure of the either the assignment or the course. Students are

expected to read and adhere to the MSU academic integrity policies in the McNeese State University Catalog or visit the web site at www.mcneese.edu/integrity .

Diversity and Sexual Harassment Policy:

Students should visit the MSU webpage at www.mcneese.edu/policy/diversity/htm for information about diversity and sexual harassment policies and procedures.

Students with Disabilities:

Any student with a disability is encouraged to contact the Office of Services for Students with Disabilities in Drew Hall, Room 200, voice (337) 475-5916; hearing impaired (337) 475-5722. It is each student's responsibility to register with the Office of Services for Students with Disabilities when requesting a reasonable accommodation and contact their instructor, in a timely fashion, regarding reasonable accommodation needs. Please visit www.mcneese.edu/policy/ada.php for details.

A student with a disability is responsible for locating the emergency exits and the areas of refuge in a classroom building. The student is then encouraged to develop an evacuation plan and discuss the plan with the instructor.

Fire Drill Policy:

McNeese State University will periodically conduct fire drills. In the event of a fire drill or a related building emergency, all persons in a classroom are required to exit the building using posted escape routes or the Area of Refuge for individuals with disabilities.